

SOV/109-3-7-2/23

Application of the Doppler Effect for the Determination of the Orbital Parameters of the Artificial Earth Satellites

they are symmetrical with respect to f_0 (as shown in Fig.4); t_0 is simply evaluated by constructing a secant which intersects the curve at a point O in such a way that its segments between O and two other intersecting points are equal (see Fig.4). The instant of maximum approach can also be determined analytically by approximating the frequency-time curve by means of straight lines (as shown in Fig.5), but this procedure is less accurate. Eq.(2) can also be written as Eq.(11). If this equation is plotted in

Δt^2 and $\Delta t^2/\Delta f^2$ coordinates a straight line is obtained (see Fig.6) which intersects the coordinates at a and b ; it is thus possible to determine the average velocity v_0 and the minimum distance r_0 . These quantities are expressed by Eqs.(14) and (15) respectively. If the motion of the satellite is rectilinear but is subject to an acceleration a_0 , the distance between the transmitter and the receiver is given by Eq.(16), and the frequency shift is expressed by Eq.(17). If the acceleration a_0 is

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Application of the Doppler Effect for the Determination of the Orbital Parameters of the Artificial Earth Satellites

satellite is at the point B and r_0 is the corresponding air-to-ground distance. The frequency shift due to the Doppler effect is expressed by:

$$\Delta F = - \frac{1}{\lambda} \frac{dr}{dt} = - \frac{v_0}{\lambda} \frac{\Delta t}{\sqrt{\Delta t^2 + \left(\frac{r_0}{v_0}\right)^2}} \quad (2)$$

Eq.(2) was used to plot a number of curves for a satellite transmitter operating at $f_0 = 40$ Mc/s for various values of r_0 and v_0 , where v_0 is the average velocity of the satellite. The curves are shown in Figs.2 and 3 where ΔF is in c/s and Δt in sec. The instant of the maximum approach (or minimum distance) of the satellite can be determined from the curves of Figs.2 and 3, bearing in mind that

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BOV/109-3-7-2/23

AUTHORS: Kotel'nikov, V. A., Dubrovin, V. M., Morozov, V. A., Rzhiga, O. N., Shakhovskoy, A. M.

TITLE: Application of the Doppler Effect for the Determination of the Orbital Parameters of the Artificial Earth Satellites (Ispol'zovaniye effekta Dopplera dlya opredeleniya parametrov orbity iskusstvennykh sputnikov zemli)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Nr 7, pp 873-881 (USSR)

ABSTRACT: The frequency shift produced by the Doppler effect as a result of the motion of an earth satellite is appreciable enough to be employed in the evaluation of the time when the satellite is at a minimum distance from the point of observation (the receiver), and the corresponding air-to-ground distance and velocity. In the first approximation it can be assumed that the path of the satellite is linear (see Fig.1), so that its distance from the receiver can be expressed by:

$$r = \sqrt{r_0^2 + v_0^2 \Delta t^2} \quad (1)$$

Card 1/6 where $\Delta t = t - t_0$, where t_0 is the instant when the

KOTEL'NIKOV, V.A.; DUBROVIN, B.M.; MOROZOV, V.A.; RZHIGA, O.N.; SHAKHOVSKOY,
A.M.

Using Doppler effect in determining orbit parameters of artificial earth satellites. Isk.sput.Zem. no.1:50-61 '58.

(MIRA 12:2)

(Artificial satellites)

Reports From the Twenty-First (Cont.)

SOV/5494

Designers of Living Things [A. R. Zhebrak, Professor, Member,
AS BSSR]

109

THE AGE OF RADIO

The Second Fifty Years in the Life of Radio [V. A. Kotel'nikov,
Academician]

121

The Revolution in Intellectual Work Has Begun [S. A. Lebedev,
Academician, Head of Institut tochnoy mekhaniki i vychislitel'noy
tekhniki -- Institute of Precision Mechanics and Computing
Technique, AS USSR]

129

Man Will Kindle an Artificial Sun [G. I. Babat, Professor]

135

The Second Window Into the Universe [V. L. Ginzburg, Corre-
sponding Member, AS USSR]

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KOTEL'NIKOV, V. A.

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PHASE I BOOK EXPLOITATION SOV/5494

Vasil'yev, Mikhail Vasil'yevich, and Sergey Zacharovich Gushchev
Reportazh iz XXI veka; my zapiski vasskazy dvadtsati devyati
Sovetskikh uchenykh o nauka i tekhnika budushchego (Reports
from the Twenty-First Century. Stories of the Future) (Moscow)
Scientists on Science and Engineering of the Future
Izd-vo Sovetskaya Rossiya, 1958. 243 p. 50,000 copies printed.

Ed.: V. A. Golubkova; Tech. Ed.: G. I. Kleyeva.

PURPOSE: This book is intended for the general reader.

COVERAGE: The book contains 27 articles (told reporters by
Soviet scientists) dealing with probable future progress in
physics, chemistry, biology, electricity, metallurgy, engineering,
mining, medicine, space, and photography. Attention is given to
exploration of space, atomic underground gasification of coal, use of
automation, atomic underground gasification of coal, use of
new metals, mechanization of oil fields, atomic electric stations,
production of metal parts by the process of explosion, explosions
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Reports From the Twenty-First (Cont.)

SOV/5494

in dam construction; cancer, internal longevity reserves,
machine diagnoses of illnesses, surgery vs. treatment by ultra-
sonic vibrations, mechanical heart substitutes, human body banks,
"medical engineering" enriched food, "superfertilizers", arti-
ficial snowfalls, agriculture using intellectual work, radiochemistry,
power beam vs. wire, machines doing intellectual work, "X" auto-
mobiles" (with "radio motors"), artificial sun (electromag-
netic rays), future ocean ships, "railway dreamboats", Moscow
of the future, moving pavements, wheelless and driverless auto-
mobiles, electric cameras, the industrialization of Siberia,
use of underground heat, climate control, living on the moon,
antimatter, and photon jet. Names of the interviewed scientists
are given. There are no references.

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Mission Into the Future
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Reports From the Twenty-First (Cont.)

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Learn to Dream [A. N. Mersyanov, Academician]

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THE FUNDAMENTAL AND MOST IMPORTANT THINGS

Transformation of Elements -- the Future of Metallurgy [I. P.
Bardin, Academician, Vice-President, AS USSR]

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Mines Are Breathing Their Last [Y. S. Garkusha, Director of
Vsesoyuzny nauchno-issledovatel'skiy institut "Podzemnyy" --
All-Union Scientific Research Institute of Underground Gasifi-
cation of Coal -- and N. A. Fedorov, Deputy Director for the
Scientific Section]

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Automatic Oil Field [S. I. Mironov, Academician, and M. A.
Kopelyanov, Corresponding Member, AS USSR]

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From the Sources [A. V. Vinter, Academician]

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107-57-1-7/60

A.
AUTHOR: Kotel'nikov, V., Academician, Director of the Institute of Radio-Engineering and Electronics, AS USSR

TITLE: Scientists and Radio Specialists Answer Questions of Editors (Na voprosy redaktsii otvechayut uchenyye i radiospetsialisty)

PERIODICAL: Radio, 1957, Nr 1, p 7 (USSR)

ABSTRACT: Radio-amateur experimentation with decimeter- and centimeter-wave radio communication and with long-distance TV reception is expedient. Radio clubs and groups of radio amateurs could explore the possibility of communication by means of reflections from the sporadic E-layer. In connection with the present maximum of solar activities, it would be useful to explore the propagation of meter waves in 1957 and 1958.

ASSOCIATION: Institut radiotekhniki i elektroniki AS SSSR (Institute of Radioengineering and Electronics, AS USSR)

AVAILABLE: Library of Congress

Card 1/1

KOTEL'NIKOV, V.A.

107-57-1-2/60

AUTHOR: Academician A.I. Berg, Academician B.A. Vvedenskiy, Academician S.A. Vekshinskiy, Academician ~~V.A. Kotelnikov~~, Corresponding Member AS USSR A.L. Mintz, Corresponding Member AS USSR A.A. Pistol'kors, Corresponding Member AS USSR V.I. Siforov

TITLE: Search, Dare, Create (Ishchite, derzayte, tvorite)

PERIODICAL: Radio, 1957, Nr 1, p 1 (USSR)

ABSTRACT: This is an open letter, an appeal to radio amateurs to experiment boldly, to create new designs, to promote new ideas in application of radio and electronics in industry, farming, transportation, and communication. The role of radio amateurism as a preparatory school for radio specialists in industry is noted. Achievements of radio and electronics are considered as a basis of development of all sciences, production, and even planning. Radio amateurs are urged to search, to dare, and to create.

AVAILABLE: Library of Congress

Card 1/1

KOTEL'NIKOV, Vladimir Aleksandrovich; SHAMSHUR, V.I., redaktor; SKVORTSOV, I.M.
tekhnicheskiiy redaktor.

[The theory of potential resistance to interference] Teoriia potentsial'noy pomekhoustoichivosti. Moskva, Gos.energ.izd-vo, 1956. 150 p.
(MIRA 10:5)

(Radio--Interference)

KOTEL'NIKOV, V.

USSR/ Electronics - Radio

Card 1/1 Pub. 89 - 9/24

Authors : Kotel'nikov, V., Academician

Title : Radio of tomorrow

Periodical : Radio 5, 16 - 19, May 1955

Abstract : In response to an appeal made by the editors of the journal, RADIO, some of the most prominent radio-specialists of the USSR present their views and ideas on the development of radio engineering for the near future. Views are presented regarding the radio control of cosmic rockets, utilization ultra-short waves, etc.

Institution :

Submitted :

KOTEL'NIKOV, VLADIMIR ALEKSANDROVICH;

KOTEL'NIKOV, Vladimir Aleksandrovich; NIKOLAYEV, Aleksandr Mikhaylovich;

LEBEDEV, V.L., otvetstvennyy redaktor; VEYENTRAUB, A.B., tekhnicheskiy redkator

[Principles of radio engineering] Osnovy radiotekhniki. Moskva, Gos. izd-vo lit-ry po voprosam svyazi i radio. Pt. 2. 1954. 306 p.

[Microfilm]

(MLRA 7:9)

(Radio)

KOTEL'NIKOV, V. A.

Dissertation: "Transient Processes in Radio-Frequency Amplifiers".

Elektrichestvo, No. 7, Moscow, August 1953

KOTEL'NIKOV, V. A.

Osnovy radiotekhniki. [The principles of radio engineering]. Dopushcheno v kachestie uchebnika dlia elektrotekhn. vuzov i fakul'tetov. Moskva, Gos. izd-vo lit-ry po voprosam svyazi i radio, 1950-v. (1) diagrs.

DLC: TK6550.K66

SO: Soviet Transportation and Communications, A Bibliography, Library of Congress, Reference Dpartment, Washington, 1952 Unclassified.

KOTEL'NIKOV, V. A.

"Problems of the Noise-Stability of Radio Communications"

Radio Engineering Collection, Gosenergoizdat, 1947.

KOTEL'NIKOV, V. A.

"The Interference Rejection of Different Types of Lines with Regard to Fluctuating Interference,"

Radiotekhnika, no 2, May 46, pp 75-83

ACCESSION NR: AP4025114

ASSOCIATION: Leningradskiy gosudarstvenny'y universitet im. A.A. Zhdanov
(Leningrad State University)

SUBMITTED: 02Dec63

DATE ACQ: 17Apr64

ENCL: 00

SUB CODE: CH

NO REF SOV: 004

OTHER: 004

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Card

ACCESSION NR: AP4025114

properties of cadmium sulfide justifies the assumption of a connection between oxygen photoelectric sorption and the photoelectric processes in CdS. This was checked by a number of tests in which simultaneous measurements were made of oxygen photoelectric sorption and CdS photoconductivity. The tests revealed that all the CdS samples possessed photoconductivity, the latter changing with the different thermal processing conditions of the photoelectric oxygen adsorbent. Thus a reduction in the initial rate of photoelectric sorption was accompanied by a reduced photoconductivity. Although the mechanism of the oxygen photoelectric sorption on cadmium sulfide is not very clear, the mentioned experiments have proved the existence of a close connection between the photoelectric sorption and the photoelectric processes in the adsorbent. "In conclusion, I take the opportunity to express my gratitude to Acad. A. N. Terenin for his supervision of the project." Orig. art. has: 3 figures and 1 equation.

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ACCESSION NR: AP4025114

S/0020/64/155/003/0654/0657

AUTHOR: Kotel'nikov, V. A.

TITLE: Photoelectric sorption of oxygen on cadmium sulfide.

SOURCE: AN SSSR. Doklady*, v. 155, no. 3, 1964, 654-657

TOPIC TAGS: Photoelectric sorption, photodesorption, transistor, semiconductor adsorbent, Pirani manometer, photoelectrooptical magnifier, photoconductivity, diffraction lattice, Wheatstone bridge, automatic potentiometer, photo emf, contact potential, cadmium sulfide

ABSTRACT: An investigation of the photoelectric sorption of oxygen on cadmium sulfide involved the use of both commercial and laboratory-produced CdS polycrystalline samples. During the experiments the spectral measurements were made with a homemade reflecting grating monochromator. The preliminary illumination of the CdS powder in a vacuum was found to have no appreciable effect on the photoelectric sorption. A comparison of the data on the photoelectric sorption of oxygen on CdS with the information available in literature on the photoelectric

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KOTEL'NIKOV, V.A.

Photodesorption of oxygen from the NiO surface. Kin. i kat.
5 no.3:565-567 My-Je '64. (MIRA 17:11)

1. Leningradskiy gosudarstvennyy universitet imeni Zhdanova,
fizicheskiy institut.

MILLIONSHCHIKOV, M.D., akademik; ARUTYUNOV, K.B.; NESMEYANOV, A.N., akademik;
TAL'ROZE, V.L., doktor khim.nauk; PAVLENKO, V.A.; KOTEL'NIKOV, V.A.,
akademik; PETROV, B.N., akademik; NOVIKOV, I.I.; MANDEL'SHTAM, S.L.,
doktor fiz.-matem.nauk; VAYNSHTEYN, B.K.; SHUMILOVSKIY, N.N., akademik

Problems in the manufacture of scientific instruments. Vest.AN SSSR
35 no.6:3-20 Je '65. (MIRA 18:8)

1. Glavnyy konstruktor Spetsial'nogo konstruktorskogo byuro
analiticheskogo priborostroyeniya (for Pavlenko). 2. Chleny-
korrespondenty SSSR (for Novikov, Vaynshteyn). 3. AN Kirgizskoy
SSR (for Shumilovskiy).

KOTEL'NIKOV, V.A.; KOROTKOV, A.I.

Accelerated table shifting for the 742 mortising machine. Inform.
tekh. sbor.no.1:25-27 '54. (MLRA 9:7)

1.Novo-Kramatorskiy mashinostroitel'nyy zavod imeni Stalina, g.
Elektrostal'. (Machine tools)

KONONENKO, V., kand.tekhn.nauk, izobretatel' (Khar'kov); KOTEL'NIKOV, V., inzh.
(Khar'kov); ZAYTSEV, K., inzh. (Khar'kov); KUSHNARENKO, S., inzh.
(Khar'kov)

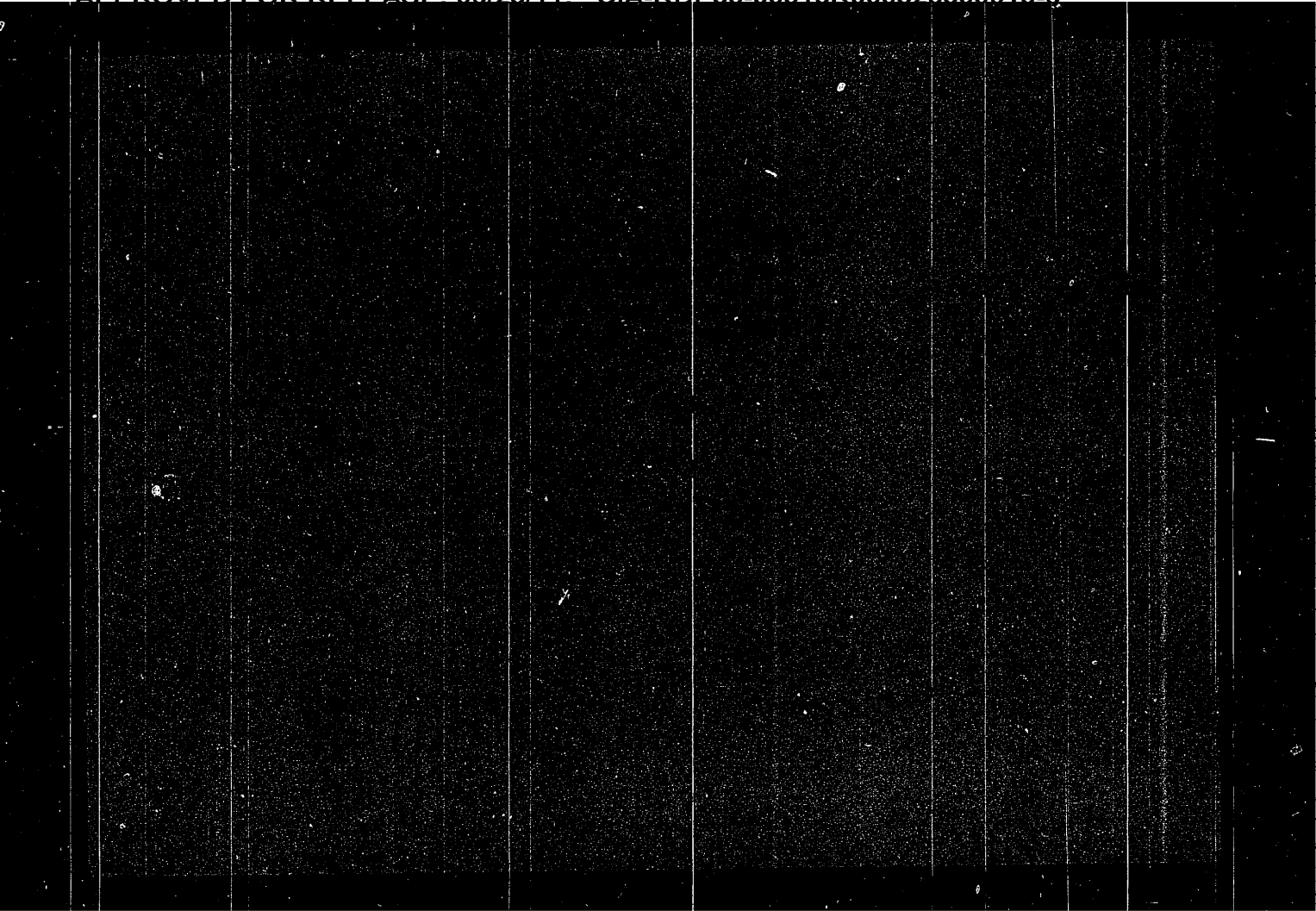
Controlled explosion. Izobr.i rats. no.12:4-6 D '62. (MIRA 15:12)
(Explosions)

1001.11.11, 1. 1. (On-c)

"Conveyor-Line Construction and Mechanization of the Loading of Shell Cartridges and
Houses." (Soviet Sci. Technical Inst. of Engineers of Military Transport, 11 Mar 54.
Dissertation (Sergey Arkadyevich Fiksel, 21, Nov 54)

SO: 1001.11.11, 1. 1. 1954

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000825300015-6



KOTEL'NIKOV, S.B.; LYUKIMSON, M.I.; AMITINA, N.I.

Pilot plant for the decontamination of waste waters from the arsenic-soda sulfur purification. Koks i khim. no.8:42-45 '62.
(MIRA 17:2)

1. Zhdanovskiy koksokhimicheskiy zavod.

KOTML'NIKOV, S.A.

The K-367B-type double-crack press. Biul.tekh.-ekon.inform. no.4:
19-16 '63. (MIRA 12:7)

(Power presses)

KOTEL'NIKOV, S. A.

VIDANOV, K.Kh.; KOTEL'NIKOV, S.A.; KALMENS, R.I., redaktor; DUBOVKINA,
N.A., tekhnicheskii redaktor

[Bakery goods production] Proizvodstvo muchnykh konditerskikh
izdelii. Moskva, Pishchepromizdat, 1953. 207 p. (MLRA 7:9)
(Baking)

BOGACHENKOV, S., inzhener-podpokovnik; RUSANOV, P., inzhener-podpolkovnik;
KOTEL'NIKOV, S., inzhener-mayor

Renewed workshop. Tekh. i vooruzh. no.5:68-70 My '64.
(MIRA 17:9)

KOTEL'NIKOV, S.

Zhdanovo Coke-Chemical Plant. Koks i khim. no.4:54 '62.
(MIRA 16:8)

(Zhdanovo—Coke industry)

IGNAT'YEV, B. G.; FOLTORATSKIY, N. I.; MITROFANOV, V. I.; KOTEL'NIKOV, R. B.;
BASHLYKOV, S. N.

"Vacuum reduction, hot pressing and some properties of uranium bicarbides."

paper submitted but not presented at Intl Powder Metallurgy Conf, New York
City, 14-17 June 1965.

KOTEL'NIKOV, R.B.

Conference on the Technology of new Nuclear Materials and
Nonmetallic Fuels. Atom energ. 16 no.3:275-278 Mr '64.
(MIRA 17:3)

Table 1

85561

S/089/60/009/005/004/020
B006/B070

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----|-----|------|----|-----|-------|------|------|------|-------|
| 1 | 100 | 1800 | 0 | 0,2 | 93,50 | 5,11 | 1,07 | 4,04 | 98,61 |
| 2 | 100 | 1800 | 0 | 0,2 | 94,77 | 4,90 | 0,18 | 4,72 | 99,67 |
| 3 | 88 | 1800 | 10 | 0,2 | 95,13 | 3,55 | 0,03 | 3,55 | 98,68 |
| 4 | 95 | 1800 | 10 | 0,2 | 94,90 | 4,44 | 0,03 | 4,41 | 99,34 |
| 5 | 100 | 1800 | 10 | 0,2 | 94,76 | 5,00 | 0,07 | 4,93 | 99,76 |
| 6 | 105 | 1800 | 20 | 0,2 | 93,71 | 5,69 | 0,05 | 5,68 | 99,40 |
| 7 | 100 | 1800 | 60 | 0,2 | 94,71 | 5,00 | 0,11 | 4,89 | 99,71 |
| 8 | 100 | 1800 | 60 | 0,2 | 94,75 | 4,89 | 0,06 | 4,83 | 99,82 |
| 9 | 100 | 1800 | 60 | 50 | 94,91 | 4,91 | 0,13 | 4,78 | 99,82 |
| 10 | 100 | 1800 | 60 | 350 | 94,79 | 4,91 | 0,17 | 4,74 | 99,70 |

TABLE 1

Legend to Table 1: 1) Number of experiment. 2) Amount of C in the charge in % of the stoichiometric amount. 3) Maximum temperature [$^{\circ}\text{C}$]. 4) Holding time at maximum temperature [min]. 5) Residual pressure [μ]. 6) U content [wt%]. 7) Content of C_{total} . 8) Content of C_{free} . 9) Content of C_{bound} (difference). 10) Sum of U + C_{total} .

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B006/B070

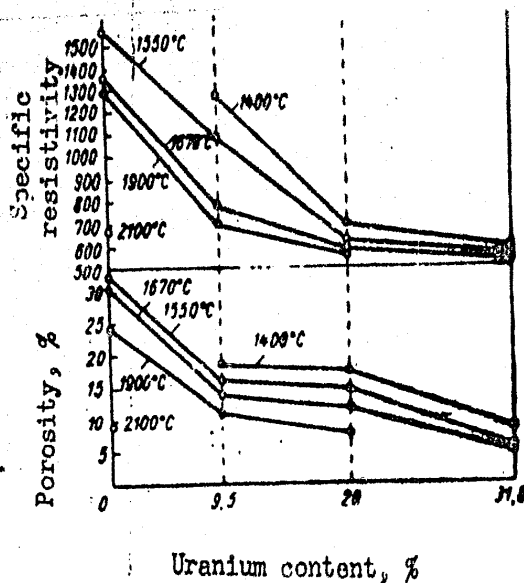


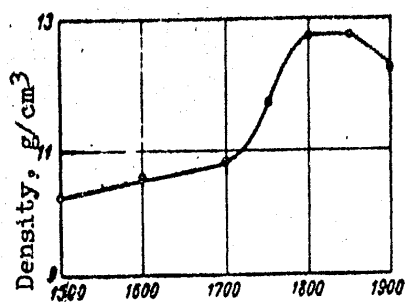
Fig. 2

Figure 2. Relationship of porosity and electric resistivity of sintered UC + U specimens to uranium additions and sintering temperature (Holding time, 2 hr).

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Extrusion temperature, °C

Figure 1. Relationship between density of hot-extruded specimens and extrusion temperature ($p = 300 \text{ kg/cm}^2$; $t = 5 \text{ min}$)

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Uranium Carbide

S/089/60/009/005/004/020
B006/B070

was $923 \pm 56 \text{ kg/mm}^2$. UC specimens and UC + 20wt% U were subjected to isothermal heat treatment (200-1000°C), and the change of their properties was studied. Pure UC with a porosity of ~15% could withstand 500 cycles without fracture and UC+U specimens - more than 1000 cycles. There are 8 figures, 3 tables, and 7 references: 3 Soviet, 1 British, 2 US, and 1 Austrian.

SUBMITTED: March 4, 1960

Card 3/6

85561

Uranium Carbide

S/089/60/009/005/004/020
B006/B070

composition of UC. For hot extrusion of UC specimens, the graphite extrusion die was placed in a hermetically sealed metal vacuum chamber (~ 10 mm Hg), and the effects of extrusion pressure, temperature, and holding time on the density of the specimen were studied. The graphite die was lined with molybdenum foil to prevent carbonizing of UC to UC_2 . Temperatures above $1850^\circ C$ caused a lowering of the density of UC. The porosity of specimens of square cross section and with a length-to-diameter ratio equal to one was about 5%. Briquets made of UC powder or of a UC + U mixture with different U contents (9.5 - 31.8% by weight) were also sintered in graphite crucibles placed in a vacuum furnace with graphite heating elements. After sintering for two hours at $2200^\circ C$, the porosity of UC was found to be 10%. The introduction of metallic uranium increased the density considerably. With a uranium content of 25% by volume (31.8% by weight) and two-hour sintering at $1700^\circ C$, it is possible to obtain a compound with a porosity of 5% or less. The thermal conductivity of UC between 100 and $700^\circ C$ varied from 0.028 to 0.04 cal/cm.sec.deg. The mean thermal coefficient of linear expansion in the range $20-1500^\circ C$ was $11.6 \cdot 10^{-6}$. The microhardness of the UC phase

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05501

S/089/60/009/005/004/020
B006/B070

21,1330

AUTHORS: Meyerson, G. A., Kotel'nikov, R. B., Bashlykov, S. N.TITLE: Uranium Carbide ✓PERIODICAL: Atomnaya energiya, 1960, Vol. 9, No. 5, pp. 387 - 391

TEXT: The present paper gives results of investigations of the effect of the conditions of UC preparation on its composition. UC is of interest as a possible nuclear fuel or as a material for nuclear thermoelectric transducers. The object of the investigations was to establish the optimum conditions for the preparation of stoichiometric UC. The UC powder was prepared from a mixture of uranium dioxide and carbon black according to the equation: $UO_2 + 3C \rightarrow UC + 2CO$. The mixture was placed in beryllium oxide crucibles, and sintered under different conditions in a vacuum furnace with graphite heating elements. The UC briquets obtained were then ground into powder with grain sizes of less than 10-15 μ . The density of the UC powder was 12.97 ± 0.09 g/cm³. Table 1 gives a collection of data on the effect of reduction conditions on the

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69391

SOV/137-59-4-8001

Some Properties of Alloys in TiB_2 - CrB , TiB_2 - W_2B_5 and ZrB - CrB_2 Systems

The results obtained are used to the conclusion that continuous series of solid solutions exist in the TiB_2 - CrB_2 system; and that solid solutions of limited solubility are present in the TiB_2 - W_2B_5 and ZrB_2 - CrB_2 systems. The authors discuss in detail results of oxidation kinetics; decrease in overweight and in corrosion depth was observed in boride alloys, as compared to plain borides. Heat resistance of borides is higher than that of carbides, but lower than that of Mo silicide. The authors advance the hypothesis that in boride oxidation "self-healing" of the cinder takes place by the filling-up of defects with oxidation products (MeO - B_2O_3). This is confirmed by investigations into the cinder structure on the prepared areas and oblique cuts. These investigations showed also that in the majority of cases multilayer cinder is being formed, containing in its internal layers lower oxides (TiO , ZrO , WO_2). ✓

R.A.

Card 2/2

18.6100

69391
SOV/137-59-4-8001

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 4, p 92 (USSR)

AUTHORS: Meyerson, G.A., Samsonov, G.V., Kotel'nikov, R.B., Voynova, M.S.,
Yevteyeva, I.P., Krasnenkova, S.D.

TITLE: Some Properties of Alloys in TiB_2 - CrB , TiB_2 - W_2B_5 and ZrB - CrB_2 Systems

PERIODICAL: Sb. nauchn. tr. Nauchno-tekhn. o-va tsvetn. metallurgii, Mosk. in-t
tsvetn. met. i zolota, 1958, Nr 29, pp 323 - 338

ABSTRACT: Detailed information is given on results and methods of the experimental investigation into TiB_2 - CrB , TiB_2 - W_2B_5 , ZrB - CrB_2 systems. Initial borides were prepared by the vacuum-thermal method, and the alloys (over 5 - 10 mol %) were obtained by hot-pressed sintering of boride powder mixtures. After hot pressing all the specimens were annealed at 2,000 - 2,100°C for 3 - 4 hours. The authors carried out metallographic, duro-metric and roentgeno-structural investigations; the thermal coefficient of linear expansion β was determined, as well as oxidation kinetics at 1,000°C, and the depth of corrosion; strength characteristics (σ_b , σ_b compr.) of plain borides were also determined at room temperatures.

Card 1/2

SOV/81-59-8-26424

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 8, p 54 (USSR)

AUTHOR: Kotel'nikov, R.B.

TITLE: The Problem of the Formation of Solid Solutions in the Systems of
Carbides, Nitrides, Borides and Silicides of Transition Group Metals

PERIODICAL: Sb. nauchn. tr. Nauchno-tekhn. o-vo tsvetn. metallurgii, Mosk. in-t
tsvetn. met. i zolota, 1958, Nr 29, pp 315 - 322

ABSTRACT: Experimental material published in the literature on the systems of solid high-melting metal-like compounds and the conditions for the formation of continuous solid solutions for components of various types have been analyzed. For the compounds of the metals of transitional groups with C, N, B and Si, the common crystal lattice and the common type of the chemical bond in the compounds are the conditions for the formation of continuous solid solutions. The possibility of the formation of continuous solutions in systems not yet studied has been considered.

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A.Zolotarevskiy

The Problem of the Formation of Continuous Series of Solid 78-3-4-1/38
Solutions in Systems With Carbides, Nitrides, Borides and Silicides
of Metals of the Transition Group

ASSOCIATION: Institut tsvetnykh metallov i zolota im. M. I. Kalinina
 (Institute for Non-Ferrous Metals and Gold imeni M. I.
 Kalinin)

SUBMITTED: June 25, 1957

Card 3/3

The Problem of the Formation of Continuous Series of Solid Solutions in Systems With Carbides, Nitrides, Borides and Silicides of Metals of the Transition Group 78-3-4-1/38

within the compounds must be of the same character. In references the character of the interaction of the components in carbides, nitrides, carbide-nitrides, borides and silicides was systematized. In a comparison of all systems forming continuous series of solid solutions as well as in taking into account some exceptions, as for instance, Fe_3C - Mn_3C , Fe_2B - Mn_2P , ZrB_2 - MoB_2 , CrB_2 - TaB_2 it was found that the atomic ratio between metals and atomic size is the decisive factor in the formation of continuous series of solid solutions. The electrochemical similarity of the metals and the similar crystalline structure are of secondary importance in the interaction of the compounds.

The borides of the metals of the transition group are of metallic character.

Especially the systems TiB_2 - ZrB_2 - CrB_2 are of actual importance as new materials. The formation of continuous series of solid solutions was found in the system TiB_2 - CrB_2 . In the system ZrB_2 - CrB_2 a limited mutual solubility was found.

There are 1 figure, 2 tables, and 10 references, 6 of which are Soviet.

Card 2/3

AUTHOR:

Kotel'nikov, R. B.

78-3-4-1/38

TITLE:

The Problem of the Formation of Continuous Series of Solid Solutions in Systems With Carbides, Nitrides, Borides and Silicides of Metals of the Transition Group (K voprosu obrazovaniya nepreryvnykh ryadov tverdykh rastvorov v sistemakh, obrazovannykh karbidami, nitridami, boridami i silitsidami metallov perekhodnykh grupp)

PERIODICAL:

Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 4, pp. 841-846 (USSR)

ABSTRACT:

In the present work the papers already published on the systems of high-fusible metal-like compounds are summarized. The conditions for the complete mutual solubility of inter-metal compounds are of great practical and theoretical interest. Metal-like compounds of the metals of the transition group with light metalloids C, N, B, and Si form continuous series of solid solutions. In the formation of solid solutions the following must be taken into account: 1.-The compounds must have the same crystal lattice; 2.-Metals appearing in metal-like compounds must, among themselves, also form continuous series of solid solutions; 3.-The chemical binding

Card 1/3

78-3-4-11/38

Some Properties of Alloys of the Metals of the Transition Group With
High-Melting Brides

investigation was carried out. In the system TiB_2 - CrB_2 continuous series of solid solutions occur, and in the systems TiB_2 - W_2B_5 and ZrB_2 - CrB_2 the solubility is limited. The solubility of TiB_2 in W_2B_5 and of W_2B_5 in TiB_2 never exceeds 10 or 5 mol%, respectively. The solubility of ZrB_2 in CrB_2 is about 2mol%, of CrB_2 in ZrB_2 it is very small. There are 4 figures, 4 tables, and 18 references, 11 of which are Soviet.

ASSOCIATION: Moskovskiy institut tsvetnykh metallov i zolota im. M. I. Kalinina
(Moscow Institute for Non-Ferrous Metals and Gold imeni M. I. Kalinin)

SUBMITTED: June 25, 1957

Card 2/2

78-3-4-11/38

AUTHORS: Meyerson, G. A., Samsonov, G. V., Kotel'nikov, R. B.,
Voynova, M. S., Yevteyeva, I. P., Krasnenkova, S. D.

TITLE: Some Properties of Alloys of the Metals of the Transition
Group With High-Melting Borides (Nekotoryye svoystva splavov
boridov tugoplavkikh metallov perekhodnykh grupp)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 4, pp. 898-903 (USSR)

ABSTRACT: In the present paper investigations of the alloys with the
systems TiB_2-CrB_2 , $TiB_2-W_2B_5$ and ZrB_2-CrB_2 were carried out.
Finely powdered borides of TiB_2 , ZrB_2 , CrB_2 and W_2B_5 were
produced by vacuum-technique methods. The alloys of the
system TiB_2-CrB_2 have monophasic structure in all intervals
of the composition. The alloys of the systems $TiB_2-W_2B_5$
and ZrB_2-CrB_2 are biphasic.
The alloys were investigated with respect to microhardness
and it was found that the alloys of the system TiB_2-CrB_2
at 80 Mol% TiB_2 have a maximum microhardness of 4200 kg/mm^2 .
The curves of microhardness of the systems $TiB_2-W_2B_5$ and
 ZrB_2-CrB_2 have the characteristic shape of biphasic alloys.
With all systems also the metallographic and radiographic

Card 1/2

S/137/60/000/02/04/010

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No 2, p 92, # 2781

AUTHORS: Meyerson, G.A., Samsonov, G.V., Kotel'nikov, R.B., Voynova, M.S.,
Vevteyeva, I.P., Krasnenkova, S.D.

TITLE: Some Properties of Alloys of High-Melting Transition Metal
Borides

PERIODICAL: V sb.: Bor. Tr. Konferentsii po khimii bora i yego soyedineniy,
Moscow, Goskhimizdat, 1958, pp 58 - 73

TEXT: Information is given on the production technology and results of investigations into the phase composition and the structure of products of diffusional interaction between initial borides of the TiB_2 - CrB_2 , TiB_2 - W_2B_5 and ZrB_2 - CrB_2 systems. The authors studied also microhardness of phases, heat-resistance of alloys and the structure of cinder of various composition.

A.P.

Card 1/1

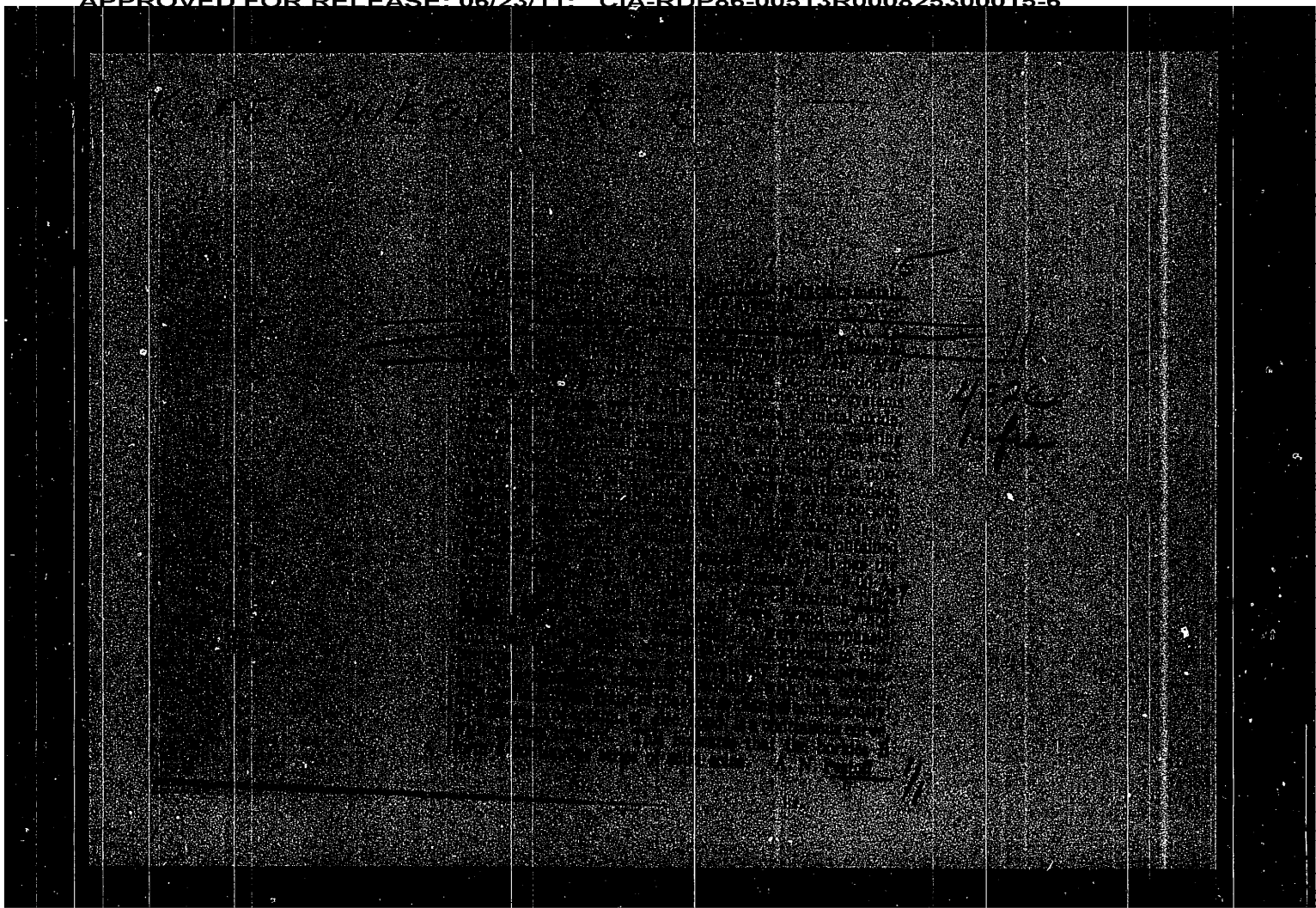
KOTEL'NIKOV, R. B.

Min Higher Education USSR. Moscow Inst of Nonferrous Metals and Gold imeni
M. I. Kalinin. Chair of Metallurgy of Rare Metals.

KOTEL'NIKOV, R. B. - "Investigation of some properties of alloys in the following
systems: TiB_2-ZrB_2 , TiB_2-CrB_2 , TiB_2-WB_2 and ZrB_2-CrB_2 ." Min Higher Education
USSR. Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin. Chair of
Metallurgy of Rare Metals. Moscow, 1956.
(Dissertation for the Degree of Candidate in Technical Sciences.)

SO: Knizhnaya Letopis', No. 13, 1956

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000825300015-6



KATEL'NIKOV, R. B.

[illegible]

BOGOMOLOV, P.F.; BOGOMOLOVA, E.G.; BOGOMOLOV, V.P.

Concerning losses and impoverishment. Izv. 1 vol. near 1/2 no. 1:
31-37 0 '63. (MIRA 17:13)

1. Kazakhskiy nauchno-issledovatel'skiy institut mineral'nogo syr'ya
Ministerstva geologii i okhrany zemel' KazSSR.

KOTEL'NIKOV, P.

In the primary organization of the Kazakhstan Institute for
the Design, Planning, and Study of Highways. Avt.dor. 28
no.10:20 0 '65. (MIRA 18:11)

L 45075-66
ACC NR: AP6025301

tugboat, an operation which required only 10 min. The authors list the advantages of this type of floating bridge. Orig. art. has: 3 figures. [DW]

SUB CODE: 19/ SUBM DATE: none/

Card 2/2 blg

L 45075-66

ACC NR: AP6025301 (A) SOURCE CODE: UR/0416/66/000/007/0071/0073

AUTHOR: Ryzhechkin, A., (Lieutenant Colonel); Prokof'yev, G., (Lieutenant Colonel); Korolev, A., (Major); Kotel'nikov, P., (Captain) 7

ORG: none 6

TITLE: Floating bridge made of river transportation facilities 14

SOURCE: Tyl i snabzheniye sovetskikh vooruzhennykh sil, no. 7, 1966, 71-73

TOPIC TAGS: floating bridge, bridge

ABSTRACT: A floating bridge consisting of eight platform barges of 200-ton carrying capacity each placed alongside of each other was constructed across a river in the summer of 1965. The river was 97 m wide with 1.76 m of maximum depth and the speed of the current was 0.42 m/sec. The barges were paired, and the distance between the barges was 7 m. The removable section of the bridge, for the passage of boats, was 23 m wide, and it could be removed by means of a

Card 1/2

KOTEL'NIKOV, O.K.

Distribution of waves of electromagnetic energy in a rectangular wave
guide. Dep. AN URSR no. 1:44-49 '56. (MIRA 9:7)

1. Chlen korrespondent AN URSR.
(Wave guides)

L 28859-66

ACC NR: AP6010400

Curve 1 corresponds to the change in I_r with the ordinal number of specimen: the higher this ordinal number, i.e., the smaller is the size of the crystallites forming the film, the lower I_r is. Curve 2 shows the variation in the I_r of specimen No. 3 with increasing temperature; this curve was partially plotted on the basis of the hysteresis loops determined for specimen No. 3 in a field of 1 kilo-ops, and partially extrapolated. As can be seen from this figure, in both cases a fairly steep decline in I_r , followed by its slow change, is observed; the curves of I_r follow a similar pattern. Apparently the gradual decrease in the size of crystallites from specimen to specimen leads, on the one hand, to a continuing increase in the relative volume occupied by the nonferromagnetic intercrystalline layer and, on the other, to a gradual transition from single-domain state to superparamagnetic state within the crystallites themselves -- a change which resembles the changes that set in with transition through the Curie point. This interpretation may be contested, however. In particular, the decrease in ferromagnetic properties with change in structure from crystalline to amorphous, from specimen to specimen, may be due not only to the relative increase in the thickness of the intercrystalline layer but also to the increase in the percentile content of phosphorus owing to the diffusion of phosphorus into the intercrystalline layer so that the P concentration in this layer is higher than in the crystallites. Orig. art. has: 6 figures, 2 formulas.

SUB CODE: 20, 11, 13/ SUBM DATE: 22Mar65/ ORIG REF: 005

Card 3/3

I 28859-66

ACC NR: AP6010400

transition which is observed in the films when their structure changes from crystalline to amorphous. This analogy is clearly illustrated by the curves in Fig. 1.

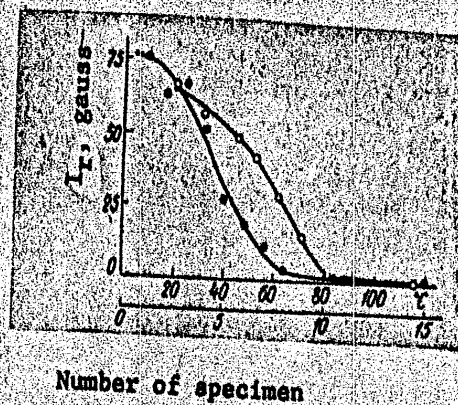


Fig. 1. Change in I_r with ordinal number of specimen (1) and the temperature dependence of I_r for specimen No. 3 (2)

I 28859-66 ENT(m)/ENP(t)/ETI IJP(s) JD/MW

ACC NR: AP6010400

SOURCE CODE: UR/0126/66/021/003/0351/0357

AUTHOR: Kotel'nikov, N. V.; Bobrov, Yu. V.

ORG: none

TITLE: Investigation of the temperature and structural dependences of the ferromagnetic properties of chemically deposited nickel films

SOURCE: Fizika metallov i metallovedeniya, v. 21, no. 3, 1966, 351-357

TOPIC TAGS: metal film, chemical deposition, magnetic property, ferromagnetic structure, temperature dependence, nickel

ABSTRACT: This is a continuation of a previous investigation (Kotel'nikov, N. V., Bobrov, Yu. V., Yegorov, G. V., Sokolov, L. N. PMM, 1965, 20, 837) with the difference that it deals with the temperature dependence of a series of chemically deposited Ni films having a structure gradually changing from specimen to specimen -- from crystalline to amorphous. The specimens were repeatedly heated at various temperatures (up to 140°C). On this basis it is established that the changes in the ferromagnetic properties of specimens which approach to Curie point display some similarity with the changes in these properties from specimen to specimen. In other words, this analogy may be drawn: the transition through Curie point is analogous to the

Card 1/3

UDC: 539.216.2:538.22

1. 15178-66
ACC NR: AP6002664

spent, the ferromagnetic properties of the films diminish. The structure of the specimens gradually changes from crystalline to amorphous the higher the number of the specimen is (the number of specimens immersed in the bath, one after another, is 20, and each is present in the bath for 20 min; thus each bath solution was used for a total of 400 min). Chemical deposition proceeds in two stages: formation of crystal nuclei and growth of crystals. It may be assumed that in the initial specimens, at the moment of formation of deposit on the substrate, the density of crystal nuclei is much lower than in the subsequent specimens and hence the initial specimens acquire a sufficiently well-expressed crystalline structure and the corresponding high ferromagnetic properties. The gradual decrease in the magnetization of the films from specimen to specimen appears to be partly due to the occupation of the d-subshell of Ni by valent electrons of P (the amount of P in the deposit is the greater the higher the number of the specimen). Moreover, the P impurity is bound to enlarge the critical dimensions of the crystallites (crystal nuclei) and reduce the ferromagnetic Curie point. "The authors are indebted to B. N. Barokiy for handling the X-ray structural analysis of the specimens, as well as to M. N. Kalugin and A. M. Lyatokh for determining the P content of the films." Orig. art. has: 5 figures.

— 27
SUB CODE: 11, 20/ SUBM DATE: 18Jun65/ ORIG REF: 006/ OTH REF: 001

Card

2/2 SC

L 15178-66 EWT(m)/EWP(w)/T/ENP(t)/ENP(z)/EWP(b) IIP(c) JN/HW
 ACC NR: AP6002664

SOURCE CODE: UR/0126/65/020/006/0837/0844

AUTHOR: Kotel'nikov, N. V.; Bobrov, Yu. V.; Yegorov, G. V.; Sokolov, L. N.

ORG: none

TITLE: Investigation of the magnetic properties of chemically deposited nickel films

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 6, 1965, 837-844

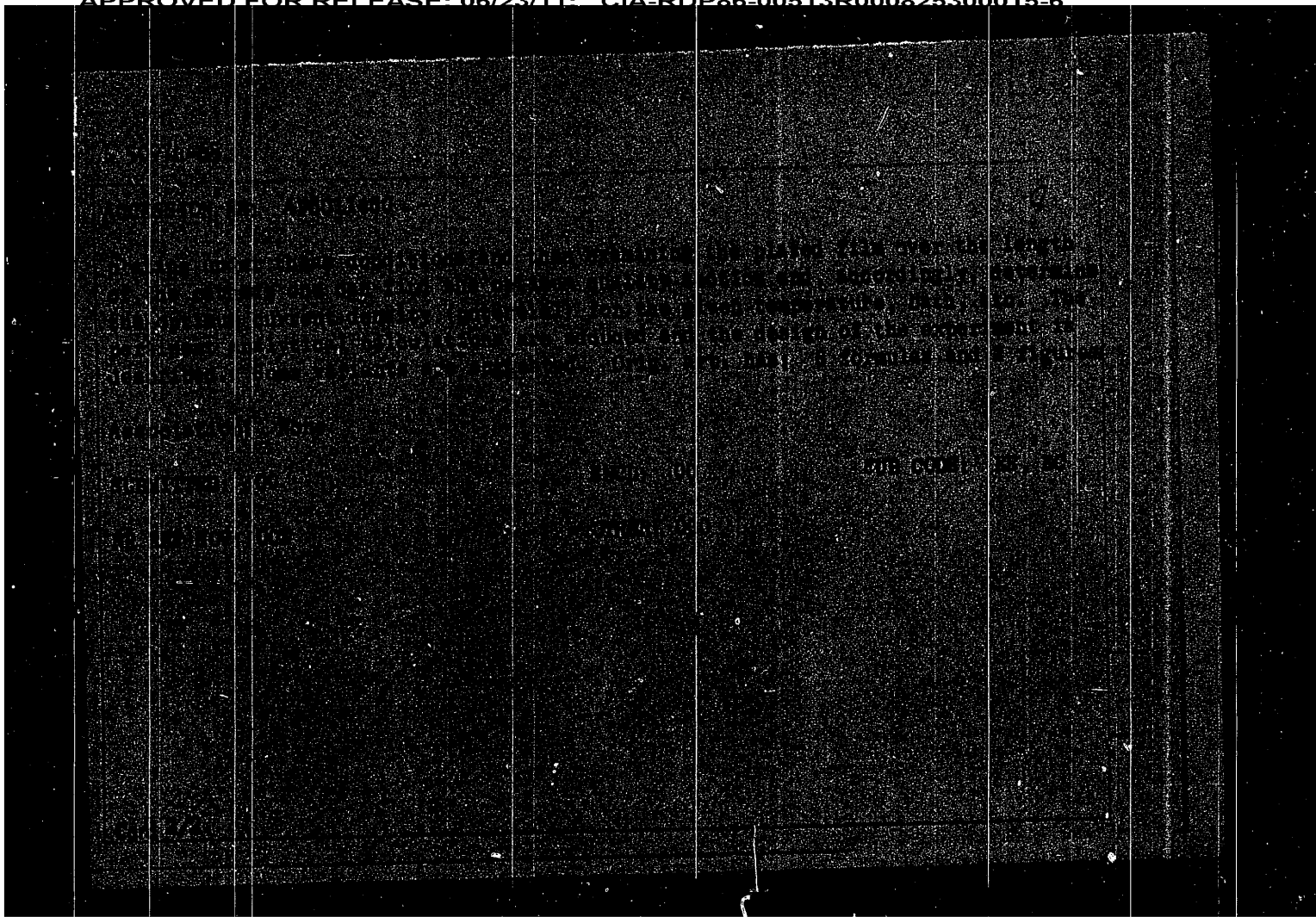
TOPIC TAGS: metal film, nickel, ferromagnetic material, magnetic property, hysteresis loop, phosphorus

ABSTRACT: This is a continuation of previous investigations (Kotel'nikov et al. Izv. AN SSSR, ser. fiz., 1961, 25, 5, 655; DAN SSSR, 1962, 143, 4, 908; Izv. SO AN SSSR, 1962, no. 6, 105; Izv. SO AN SSSR, ser. tekhn. nauk, 1963, 10, 3, 142) with the difference that it deals with the ferromagnetic properties of chemically deposited Ni films with a structure gradually varying from specimen to specimen (crystalline in first specimens and amorphous in the last specimens). The formation of ferromagnetic properties of the films was investigated as a function of oscillographically plotted hysteresis loops and differential curves in 1 and 10 kilo-cps fields. Bath composition (g/liter): $\text{NiSO}_4, 30; \text{NaMH}_2\text{PO}_2, 10; \text{NaC}_2\text{H}_3\text{O}_2, 10$. On this basis certain properties of the chemically produced films are tentatively explained since the mechanisms of formation and the structure of these films so far remain unknown. As the bath solution becomes

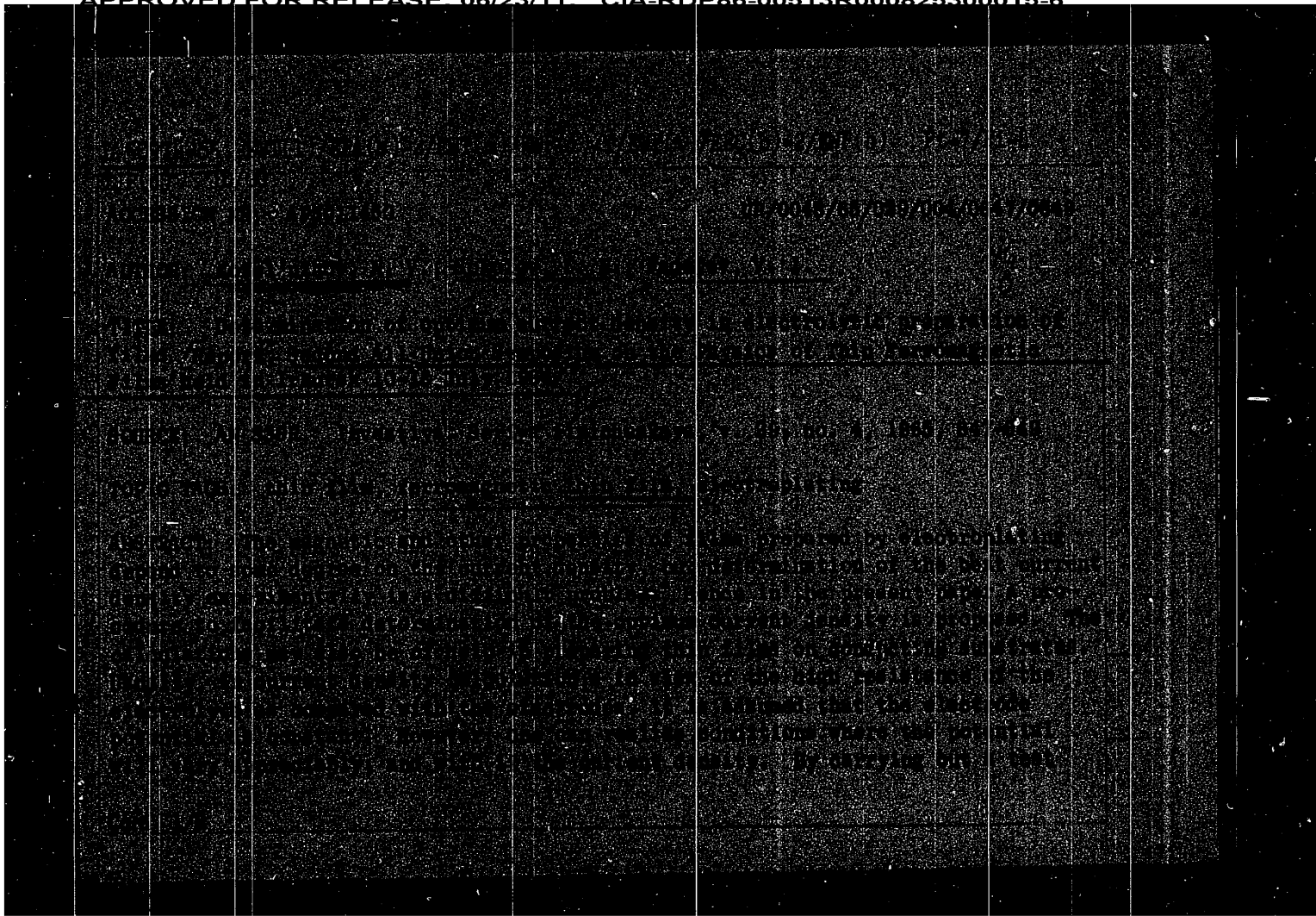
Card 1/2

UDC: 539.216.22:621.318.1:538

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000825300015-6



APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000825300015-6



ACCESSION NR: AP4009193

crystal lattice β -Ni and to the occurrence of new phases, as indicated by the appearance of new lines not visible before annealing; 5) together with improvement of the crystal lattice, the annealing of samples implies a change of their ferromagnetic properties; 6) the greatest change in ferromagnetic properties at a temperature of 400°C occurs in the first 20 minutes; 7) several ferromagnetic phases may appear in precipitates as a result of annealing; these may be distinguished from one another, for example, by the percentage content of phosphor in similar crystalline structures of nickel; 8) improvement of the crystal structure β -Ni and the occurrence of new phases results in an improvement of I_s and H_c for each sample as a whole, for which the latter is related to an appearance of microconnections of non-ferromagnetic phases which occur in the heat treatment process. Orig. art. has: 5 figures and 2 tables.

ASSOCIATION: Permskiy gosudarstvennyy universitet (Perm' State University)

SUBMITTED: 23May62

DATE ACQ: 10Feb64

ENCL: 00

SUB CODE: CH, PH

NO REF SOV: 0005

OTHER: 001

Card 3/3

ACCESSION NR: AP4009193

precipitates of chemically reduced hypophosphite of nickel in the initial state have an amorphous structure which changes to crystalline during heat processing. According to Kotol'nikov, Korenev and others (DAN SSSR, v pechatl), who recently carried out structure studies using x-ray's, precipitates in the initial state may have not only an amorphous, but a crystalline structure besides; it was also observed that samples obtained with a crystalline structure have ferromagnetic properties, whereas amorphous-structured samples do not. In the present article, on the basis of the forementioned articles and others, samples with ferromagnetic properties have been produced, which, as x-ray studies show, have a crystal structure in agreement with previous data. The effect of annealing on the ferromagnetic properties and structure of precipitates of the samples produced has been studied, with the following conclusions: 1) precipitates of nickel obtained chemically have in the initial state not only an amorphous, but also a crystalline structure with a lattice, characteristic of β -Ni; 2) all samples having a crystalline structure in the initial state have ferromagnetic properties, while samples with an amorphous structure do not have these properties; 3) the annealing of amorphous precipitates results in the appearance of ferromagnetic properties; 4) the annealing of precipitates which have a crystalline structure in the initial state results in improving the

Card 2/3

ACCESSION NR: AP4009193

S/0288/63/000/003/0142/0146

AUTHOR: Kotel'nikov, N. V.; Korenev, N. A.; Malinen, P. A.; Yermolina, T. D.

TITLE: The effect of annealing on the magnetic properties and structure of nickel obtained by a chemical method

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izv. Seriya tekhnicheskikh nauk, no. 3, 1963, 142-146

TOPIC TAGS: nickel precipitates, chemical nickel precipitates, amorphous nickel structure, crystalline nickel structure, annealed nickel, beta-nickel crystal lattice, nickel ferromagnetic properties, β -Ni

ABSTRACT: Precipitates of nickel obtained by a chemical method have a complex structure, resulting from the presence of phosphor in them (K.M. Gorbunov and A.A. Nikiforova, Fiziko-khimicheskoye osnovy* protsessy khimicheskogo nikelirovaniya. Izd-vo AN SSSR, M., 1960). The magnetic and other properties of precipitates are determined by their internal structure. According to data from a series of investigations carried out by various methods (Gorbunov and Nikiforova; V.P. Moiseyev, Izv. AN SSSR, ser. fiz., t. 26, No. 3, 378, 384, 1962),

Card 1/3

KOTEL'NIKOV, N.V.; KORENEV, N.A.; MALINEN, P.A.; YERMOLINA, T.D.

Magnetic properties and structure of nickel films produced
by a chemical method. Dokl. AN SSSR 146 no.4:797-798 0 '62.
(MIRA 15:11)

1. Permskiy gosudarstvennyy universitet im. A.M. Gor'kogo.
Predstavleno akademikom A.V. Shubnikovym.
(Nickel--Magnetic properties)

KOTEL'NIKOV, N.V.; KORENEV, N.A.; YERMOLINA, T.D.

Temperature dependence of the magnetization saturation and the
magnetic structure of nickel films prepared by a chemical method.
Dokl. AN SSSR 143 no.4:908-910 Ap '62. (MIRA 15:3)

1. Permskiy gosudarstvennyy universitet im. A.M.Gor'kogo.
Predstavleno akademikom A.V.Shubnikovym.
(Nickel--Magnetic properties)

Magnetic properties and structure ...

S/020/62/146/004/006/015
B104/B102

is typical of an "amorphous" body with diffuse lines corresponding to an interplanar spacing of $d = 2.03 \text{ \AA}$ and somewhat shifted as compared with the (111) lines of the cubic nickel lattice. There are 3 figures and 1 table.

ASSOCIATION: Permskiy gosudarstvennyy universitet im.A. M. Gor'kogo
(Perm' State University imeni A. M. Gor'kiy)

PRESENTED: May 10, 1962, by A. V. Shubnikov, Academician

SUBMITTED: May 9, 1962

Table 1.

Table 1

| | (1) | (2a) | (2b) | (2c) | (3) | (4) | (5) |
|---|-----|------|------|------|------|------|-----|
| 1 | 30 | 10 | 15 | 3,6 | — | — | — |
| 2 | 30 | 10 | 12 | 5,1 | 35,2 | 7,95 | — |
| 3 | 30 | 10 | 10 | 5,2 | 66,3 | 12,5 | — |
| 4 | 30 | 10 | 8 | 6,6 | 71,8 | 3,96 | — |
| 5 | 30 | 10 | 6,5 | 7,4 | — | — | — |
| 6 | 30 | 10 | 5 | 5,8 | — | — | — |

Card 2/2

24.2200

h157h

S/020/62/146/004/006/015
B104/B102

AUTHORS: Kotel'nikov, N. V., Korenev, N. A., Malinen, P. A.,
Yermolina, T. D.

TITLE: Magnetic properties and structure of nickel films produced
by chemical methods

PERIODICAL: Akademiya nauk SSSR. Doklady, v.146, no. 4, 1962, 797 - 798

TEXT: The specimens (Table 1) were produced and studied by methods fully described in a previous paper (N. V. Kotel'nikov et al., DAN, 143, no. 4, 908 (1962)). A nickel wire was fastened to a copper backing and nickel was precipitated for 20 min at a bath temperature of 87°C, the bath being renewed every 5 minutes. The specimens 2, 3, 4, and 5 showed ferromagnetic properties (hysteresis loops) when the magnetic field had an amplitude of 84 oe and a frequency of 50 cps. With stronger fields, specimen 1 too showed ferromagnetic properties. Freshly produced specimens were amorphous or crystalline. Amorphous specimens showed no ferromagnetic properties. X-ray pictures of specimens 1 and 4 show blurred lines of β -Ni. A fine dispersion of the precipitates is inferred from the blurred quality of the lines depending on the reflection angle. The x-ray picture of specimen 6

Card 1/2

The influence of the composition ...

S/200/62/000/006/003/003
D214/D307

40 g NiSO_4 /l, and remains constant at higher NiSO_4 concentrations. Additions of Na hypophosphate and CH_3COON_a to the electrolyte and changes in the temperature of the bath, both with constant NiSO_4 content, also alter the shapes and sizes of the hysteresis curves for the corresponding Ni films. By altering the composition and temperature of the bath, the magnetic properties of the deposited Ni film can be controlled. There are 4 figures and 2 tables. ✓

ASSOCIATION: Permskiy gosudarstvennyy universitet (Perm State University)

SUBMITTED: November 1, 1961

Card 2/2

S/200/62/000/006/003/003
D214/D307

AUTHORS: Kotel'nikov, N.V., Lorenev, N.A., and Yermolina, T.D.
TITLE: The influence of the composition of a bath and its temperature on the magnetic properties of nickel films, obtained by a chemical method
PERIODICAL: Akademiya nauk SSSR. Izvestiya. Sibirskoye otdeleniye, no. 6, 1962, 105 - 107

TEXT: The aim of this work was to see whether the composition and the temperature of an electrolytic bath influences the magnetic properties of electrolytic Ni films. The electrolyte (NiSO_4) was completely changed every 5 minutes to ensure a constant composition during electrolysis. Magnetic properties of the deposited films were measured by hysteresis curves on an EO-7 (EO-7) oscillograph at room temperature. Changes in the NiSO_4 concentration in the electrolyte produced changes in the shapes and sizes of the hysteresis curves for the corresponding Ni films. The saturation of these films increases with rising NiSO_4 content in the electrolyte, up to Card 1/2

Magnetic properties of nickel...

25b10
S/048/61/025/005/024/024
B117/B201

in the chemical way differ from those of pure nickel markedly, which is in agreement with results found by other authors. (Ref. 1). At room temperature they are considerably weaker for chemically reduced nickel, and are highly dependent on temperature. Beyond 100°C they vanish entirely. (2) An increase of the hypophosphite content in the second bath causes a weakening of ferromagnetic properties. (3) The temperature dependence of I_s , I_r , and H_c has a linear character. Coercive force at a rise of temperature was found to drop more slowly than remanence. The values of coercive force are not proportional to the magnetization of individual specimens. (4) The Curie point in the precipitates obtained is much lower than in case of pure nickel. This is evidently due to the presence of phosphorus in the precipitates. There are 6 figures, 2 tables, and 3 Soviet-bloc references.

ASSOCIATION: Permskiy gos. universitet (Perm' State University)

Card 3/5

25810

S/O48/61/025/005/024/024

B117/B201

Magnetic properties of nickel...

To prevent the solution from evaporating, the bath was sealed with a cork in which a small opening was bored to allow for the escape of the gases evolving in the course of the reaction. A small piece of an aluminum foil (1 by 3 mm) was fastened to the end of the vinyl tube to release the nickeling process. The base (copper tube) was treated both prior to that process and prior to electrolysis. The nickeling of every specimen was completed within 10 hours at 87°C. The bath was renewed every hour, and a homogeneous precipitate structure was thus achieved. Ferromagnetic properties of the specimens were examined on the basis of magnetization curves and the hysteresis loops obtained by a ballistic method. The 50-mm long compensation test coil had an inside diameter of 4.5 mm and an outer diameter of 16 mm. The difference between the coil windings wound differentially to each other was 2035. This as well as the relatively great thickness of the precipitates obtained (over 100 μ) permitted examining the ferromagnetic properties of these precipitates, which were weak compared with pure nickel. The bath compositions are indicated in Table 1 along with data of the specimens concerned. A total of six specimens was studied. Results are collected in Table 2. They are summarized as follows: (1) Ferromagnetic properties of nickel precipitated

Card 2/5

25810

S/048/61/025/005/024/024
B117/B20124,2300
AUTHORS:

Kotel'nikov, N. V., and Gachegov, V. I.

TITLE:

Magnetic properties of nickel precipitates obtained by the
method of chemical nickeling

PERIODICAL:

Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
v. 25, no. 5, 1961, 655-659

TEXT: The present investigation was the subject of a lecture delivered at a symposium on thin ferromagnetic films (Krasnoyarsk, July 4 to 7, 1960). The authors studied the hitherto little known magnetic properties of nickel precipitates of the Ni/P system obtained by way of chemical nickeling (Ref. 1: Gorbunova K. M., Nikiforova A. A., Fiziko-khimicheskiye osnovy protsessy khimicheskogo nikelirovaniya, Izd. AN SSSR, 1960). Nickel was precipitated on the outer walls of soldered copper tubes 4 mm in diameter. The tubes were placed in the bath in vertical position, and 100 mm of their length were nickel-coated; the precipitate was limited by the end of the vinyl tube, to which the copper tube was fastened. A tubular vessel with an inside diameter of 25 mm served for the chemical nickeling operation.

Card 1/5

KOTEL'NIKOV, N.V.

Organization for rapid adoption of crop rotation methods. Zemledelie
6 no.2:5-9 '58. (MIRA 11:3)

(Rotation of crops)

1. KOTEL'NIKOV, N.V.
2. USSR (600)
4. Soils
7. Agrotechnical tasks of the soil service. Pochvovedenie no.11, 1952.
9. Month List of Russian Accessions, Library of Congress, March 1953, Unclassified.

KOTEL'NIKOV, N. V.

Agriculture - Kuban Province

Necessary and valuable book ("Grassland crop rotation on Kuban collective farms."
M. G. Chizhevskiy, ed. Reviewed by N. V. Kotel'nikov). Sov. agron. 10, No. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, September 195²8. Unclassified.

SOV/126-6-2-4/34

Creation of a Magnetic Texture by Means of a Magnetic Field in
Thin Layers of Iron, Produced by the Electrolytic Method

4. The anisotropy energy of the films obtained in the case of a critical field reaches $5 \cdot 10^4$ to $6 \cdot 10^4$ erg/cm³.
 5. A magnetic field applied during electrolysis in the direction of the surface of the precipitated ferromagnetic films improves the quality of the films and strengthens its bond with the base. This method of improving the quality of ferromagnetic coatings may be of practical importance, particularly in the case of coating of thin foils, etc. with ferromagnetics which may become deformed or twisted by the precipitating substance if no magnetic field is used. Acknowledgments are made to Professor R. V. Telesnin for his useful advice.
- There are 7 figures, 1 table and 9 references, 6 of which are Soviet, 2 English, 1 German.

ASSOCIATION: Fizicheskiy fakul'tet MGU (Department of Physics, MGU)
SUBMITTED: Dec. 4, 1956 (Initially), Feb. 18, 1957 (after revision)

Card 3/3 1. Iron films--Magnetic properties 2. Magnetic field--
Applications 3. Iron films--Precipitation 4. Iron films--
Electrolysis 5. Thin layers--Properties

SOV/126-6-2-4/34

Creation of a Magnetic Texture by Means of a Magnetic Field in Thin Layers of Iron, Produced by the Electrolytic Method

to 100 and more microns, deposited on disc-shaped copper plates of 20 mm dia., 2 mm thick. In the centre these discs were fitted with a threaded hole of 2 to 3 mm dia. by means of which the disc was fixed in the electrolytic bath onto the current conducting rod of the cathode. To ensure that the iron deposits only on one flat surface, the other flat and side surface of the disc was coated with a glue. The volume of the precipitate was determined by weighing before and after electrolysis. The obtained results can be summarised thus:

1. In electrolytically produced ferromagnetic precipitates internal stresses can produce a texture.
2. The texture of the precipitated layer is affected by the material of the base, treatment of the surface of the base prior to deposition, structure and material of the precipitate, magnetic field.
3. The texture of the precipitates produced by a magnetic field has a maximum for a field of a few hundred Oersted; the degree of texturing decreases if the field is higher

Card 2/3 or lower than this critical value.

AUTHOR: Kotel'nikov, N. V.

SOV/126-6-2-4/34

TITLE: Creation of a Magnetic Texture by Means of a Magnetic Field in Thin Layers of Iron, Produced by the Electrolytic Method (Sozdaniye magnitnoy tekstury magnitnym polem v tonkikh sloyakh zheleza, poluchayemykh elektroliticheskimi metodami)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 2, pp 222-228 (USSR)

ABSTRACT: Blois (Ref.4) found that by applying a magnetic field along the surface of a permalloy film precipitated in vacuum, a uniaxial texture is produced with the axis of easy magnetisation in the direction of the applied field. In this paper the results of similar experiments on iron films are described, the aim of the paper being to investigate the thus obtained texture. The texture of the precipitates was studied by measuring the energy anisotropy of the iron films produced from aqueous solutions of its salts; the anisotropy energy was determined according to "magnetograms" recorded by means of the Akulov-Bryukhatov anisometer (Ref.2). The specimens were

Card 1/3 in the form of flat circular films with thicknesses up

The Creation of Magnetic Texture by the Magnetic Field PA - 2657
in Thin Layers of Iron Obtained by the Electrolytic Method.

posited iron. The texture of the deposits due to the magnetic field has its maximum at a field strength of some Oersted . The existence of the optimum field strength can be determined by means of the mechanical interaction of the crystallites forming the polycrystalline precipitation. The energy of the anisotropy of the obtainable films in the case of crystalline field strength attains values of from $5 \cdot 10^4$ up to $6 \cdot 10^4 \text{ erg/cm}^3$. The computed amount of the interior stresses σ due to the energetic anisotropy of the precipitation is 15 kg/mm^2 . This agrees with the results obtained by other methods. If, in the course of electrolysis, a magnetic field is plotted along the deposition plane of the ferromagnetic films, an improvement of the quality of the covering takes place and connection with the fundamant is strengthened. This improvement of quality could also be used in practice.

(1 ill.)

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|--------------|--------------------------------------|
| ASSOCIATION | Moscow State University |
| PRESENTED BY | A.V.SHUBNIKOV, Member of the Academy |
| SUBMITTED | 21.10.1956 |
| AVAILABLE | Library of Congress |
| Card 2/2 | |

Card 1/2

KOTEL'NIKOV, N.V.; MATYAS', R.N.; ANDREYEV, P.G.; SERDYUKOV, M.P.

Making concrete wall blocks with flues in construction yards
[Suggested by N.V. Kotel'nikov and others]. Rats. i izobr.
predl. v stroi. no.6:14-19 '58. (MIRA 11:10)
(Concrete blocks)

KOTEL'NIKOV, N.V.; ANDREYEV, F.G.; MATYASHA, R.N.; SYSOYEV, G.N.;
DEKAMILLI, G.M.

Large panels made of reinforced expanded clay concrete [Suggested
by N.V. Kotel'nikov and others]. Rats. i izobr. predl. v stroit.
no.6:7-11 '58. (MIRA 11:10)
(Concrete slabs) (Ceilings)

KOTEL'NIKOV, N.M.; ZUDINA, A.A.; MISYURIENKO, A.T.; YATCHENKO, M.G., red.;
MARKOVA, S.M., red.

[Area under cultivation and the number of cattle in Khabarovsk Territory; a statistical manual] Posevnye ploshchadi i pogolov'e skota v Khabarovskom krae; statisticheskii sbornik. Khabarovsk, Khabarovskoe knizhnoe izd-vo, 1958. 167 p. (MIRA 12:12)

1. Khabarovskiy kray. Statisticheskoye upravleniye. 2. Nachal'nik Statisticheskogo upravleniya Khabarovskogo kraya (for Yatchenko).
(Khabarovsk Territory--Agriculture--Statistics)

KOTEL'NIKOV, N.I.

New circuit of a d.c. converter. Radiotekhnika 16 no.10:75-76
0 '61. (MIRA 14:10)
(Electric current converters) (Transistor circuits)

KOTEL'NIKOV, N.I.

Modulation meter network with automatic carrier level clamping. Elektro-
sviaz' 17 no.11:61-63 N '63. (MIRA 17:1)

Accelerometric devices

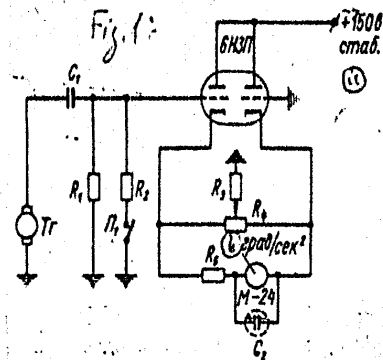


Fig. 1

Legend to Fig.1:
a) 150 v stable,
b) deg/sec².

Card 4/4

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S/115/61/000/003/002/013
B124/B204

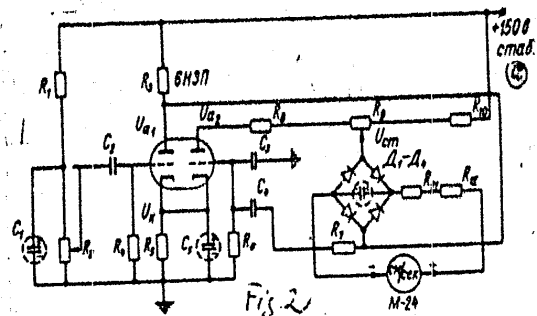


Fig. 2

Legend to Fig.2: a) 150 v stable.

✓

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B124/B204

Accelerometric devices

consisting of R_7, C_4, C_3, R_6 , to the grid of the right triode. The compensation circuit with the capacitors C_5 and C_6 secures (just as the additional resistor R_{11}) the maintenance of a uniform scale and keeps the voltage across the capacitor C_6 during the process of reversing nearly constant.

Resistor R_9 serves for zero setting. The diodes $\Delta_1 - \Delta_4$ are of the $\Delta 7K$ ($\Delta 7Zh$) type. This scheme allows to measure the velocities of linear shifts between 0 and 50 cm/sec; this range may be widened by altering the size of the potentiometer R_2 . The fluctuation of the pointer of the

M-24 (M-24)-type instrument (degree of accuracy 1.0) on reversing for up to 0.5 sec does not exceed 2%. The reduced instrumental error amounts to 2% at maximum. Shift velocity may be read directly by means of this instrument. There are 2 figures.

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B124/E204

Accelerometric devices

capacitor C_2 serves for reducing the effect of the voltage pulsation of the tachogenerator upon the readings of the instrument. The resistor R_3 reduces the linearity of the cascade. The scale of the instrument is linear, its error amounts to up to 2%. The switch Π_1 serves for altering the measuring range of angular acceleration. Further, an instrument for measuring the linear shifts in a reversible system is described. Measurement of the velocity of linear shifts in the mentioned system involves difficulties arising in differentiation, amplification, and rectification of slowly alternating voltages. Fig. 2 shows the basic scheme of a device in which the majority of these difficulties was eliminated by using a parallel compensation amplifier whose drift is rather small, a compensation circuit, and a sensitive measuring instrument. The 520-mm long wire potentiometer R_2 was used as a current source of the linear shifts. The voltage tapped from the donor is differentiated by means of the circuit C_2R_4 and fed into the grid of the left triode. The voltage amplified by the left triode is led to the rectifier and, over a compensation circuit

Card 2/4

LH

13.2530
26.2190

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B124/B204

AUTHOR: Kotel'nikov, N. I.

TITLE: Accelerometric devices

PERIODICAL: Izmeritel'naya tekhnika, no. 3, 1961, 11-12

TEXT: The first instrument described is a device for measuring angular accelerations. The device by means of which angular accelerations of from 0 - 400 and 0 - 2000 deg/sec² may be measured (reduction 800:1) is schematically shown in Fig. 1. A ТМГ-30П (TMG-30P) type tachogenerator which also serves for measuring the angular velocity is used as current source. Since periodic re-setting of zero is possible, the device was assembled according to the scheme of a parallel compensation repeater with a 6НЗП (6N3P) valve which makes this regulation possible by means of the resistor R₄. The voltage from the tachogenerator is differentiated by the circuit C₁R₁ and fed into the control network of the compensation repeater. The M-24 (M-24) device (degree of accuracy 1.0) with the zero in the center of the scale is used as a unit of measurement. The

Card 1/4

KOTEL'NIKOV, N.I. (g. Belaia TSerkov')

Ionization experiment apparatus. Fiz. v shkole 14 no.5:61-62
S-O '54. (MLRA 7:9)
(Ionization)

ACC NR: AP6034220

SOURCE CODE: UR/0120/66/000/005/0060/0066

AUTHOR: Gapotchenko, A. G.; Govorkov, B. B.; Denisov, S. P.; Kotel'nikov, N. G.; Stoyanova, D. A.

ORG: Physics Institute of the Academy of Sciences, SSSR, Moscow (Fizicheskii institut AN SSSR, Moskva)

TITLE: A spark chamber as a detector of high-energy electron and photo showers

SOURCE: Pribery i tekhnika eksperimenta, no. 5, 1966, 60-66

TOPIC TAGS: spark camera, spark chamber, electron energy, *ELECTRON DETECTION*

ABSTRACT: Characteristics of a multi-plate spark chamber used as a detector of γ -quanta and electron showers whose energies range between 50 and 200 Mev are studied. The total number of sparks formed in the camera while it is registering showers is proportional to the energy of primary particles; the average number of sparks is linearly related to the primary particle energy. Fluctuations in the total number of sparks varies according to Poisson's law. A formula relating the thickness of the chamber electrodes with the camera resolution is derived. Data on spark distribution along the shower axis and on the effectiveness of the camera in registering γ -quanta are given. Orig. art. has: 8 figures.

SUB CODE: 20, 14/ SUBM DATE: 09Nov65/ ORIG REF: 003/ OTH REF: 006

Card 1/1

UDC: 539.1.073

KOTEL'NIKOV, N.A., inzh.; MILOVIDOV, V.V., inzh.

Delivery of working plans to the shipyard design office.
Sudostroenie 24 no.12:39-40 D '58. (MIRA 12:2)
(Shipbuilding--Equipment and supplies)

KOTEL'NIKOV, N.A., inzh.

Designing and using equipment. Sudostroenie 24 no.11:52-53
N '58. (MIRA 12:1)
(Shipbuilding--Equipment and supplies)

Kotel'nikov, N.

USSR/ Electronics

Card 1/1 Pub. 89 - 30/40

Authors : Freydlis, A.; Kotel'nikov, N.; Pavlenko, V.; Tyushnikov, E.; Trapeznikov, A.; Vorob'yev, V.; Tkachenko, L.; and Nechay, V.

Title : Exchange of experiences

Periodical : Radio 10, 42-43, Oct 1954

Abstract : Several small articles, sent in by local radio operators, are featured under the above title. Each author offers, for the benefit of the others, the results of his experience in the field of electronics. The following equipment and subjects are dealt with: an automatic safety device for the protection of rural radio-center personnel against electric shock; a miniature signal generator; an "interference-free" receiving antenna; a radio-relay station of the Urozhay type; a piezoelectric pickup for an electric guitar, and others. Diagrams; drawings.

Institution:

Submitted:

SHEKHTER, I.A., prof.; VOROB'YEV, Yu.I., kand. med. nauk; KOTEL'NIKOV, M.V.

Importance of tomography in compound X-ray study of patients
with lesions of the maxillofacial region. Stomatologiya 43
no.1:38-44 Ja-F'64 (MIRA 17:4)

1. Kafedra rentgenologii i radiologii (zav. - prof. I.A.
Shekhter) Moskovskogo meditsinskogo stomatologicheskogo insti-
tuta.

VOROB'YEV, Yu.I.; KOTEL'NIKOV, M.V.

Two cases of oranioclavicular dysostosis. Vest. rent. i rad. 39 no.4:
76-77 J1-Ag '64. (MIRA 18:7)

1. Kafedra rentgenologii i radiologii (zav. - prof. I.A.Shekhter) Moskov-
skogo meditsinskogo stomatologicheskogo instituta.

KOTEL'NIKOV, L.V.; BUKHBINDER, L.I.

Intermediate station for selective communication with voice-frequency ringing. Avtom., telem. i sviaz' 8 no.6:11-14 Je '64.
(MIRA 17:6)

1. Rukovoditel' gruppy konstruktorskogo byuro Glavnogo upravleniya signalizatsii i svyazi Ministerstva putey soobshcheniya (for Kotel'nikov). 2. Starshiy inzh. konstruktorskogo byuro Glavnogo upravleniya signalizatsii i svyazi Ministerstva putey soobshcheniya (for Bukhbinder).

BUKHBINDER, L.I.; KOTEL'NIKOV, L.V.

Distribution station with selective ringing of a centralized traffic control system. Avtom. telem. i sviaz' 8 no. 3:18-21 Mr '64. (MIRA 17:5)

1. Starshiy inzh. laboratorii na zavode "Transsvyaz'" (for Bukhbinder).